Naval Aviation Systems Team
ATLANTIC RANGES & FACILITIES

Atlantic Test Ranges

Electronic Warfare Emitter Sites and Resources

Atlantic Test Ranges

EW Assets for Testing and Training

The Atlantic Test Ranges (ATR) operates multiple emitter sites to supply EW simulations for use by RDT&E and training programs. These emitters can be stand alone or used with visual targets supplied by ATR. Emitters include fixed and mobile assets such as a Triple Ground Threat Emitter, Surface Threat Emitters, Mobile Communications Vans and Antenna Trailers, the Automated Communications Test and Training System (ACTS) and the newly-developed Battlefield Voice Simulation System. Many of these resources are mobile, for use around the country and the world, and provide real-world threat scenarios for testing or training exercises.

Fixed, Mobile, Portable Emitters

136 Simultaneous Programmable RF Emitter Simulations

72 at ATR Cedar Point Complex
0.7 to 18GHz

64 at Point Lookout (Remote Site)
2 to 17 GHz

26 Simultaneous C^3 Emitter Simulations

16 at ATR Main Site

10 Mobile

EW threat emitter simulations are used to:

·Train military aircrews in the recognition of mobile tactical threats.

·Provide aircrews with a more realistic training range environment.

·Provide active threat radar parametrics for airborne and missile systems signal stimulation for national sensors and data analysis.

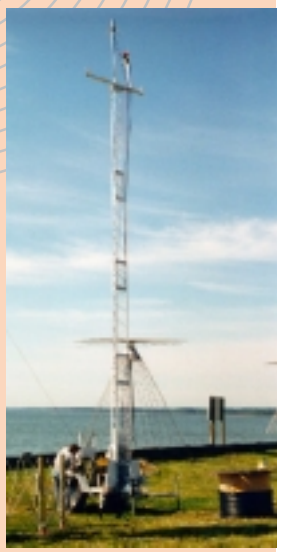
·Provide signal stimulation for antimissile radiation testing.

Electronic Warfare Assets

Automated Communications Testing System (ACTS)

The Automated Communications Testing system (ACTS) is an integrated communications simulator capable of radiating AM, FM, CW, analog and digital voice, tones, data link and complex modulation using:

- ·enclosure capable of emitting 16 simultaneous signals
- ·mobile van capable of emitting 8 simultaneous signals
- ·two remote-controlled emitter trailers capable of one 100 watt signal each



The remote-controlled emitter systems use line-of-sight RF modems to establish links with the master controller station. Each emitter system is composed of a computer-controlled GPIB-488 interface connected to synthesized signal generators, which in turn are connected to broadband linear amplifiers to provide continuous coverage from 1 MHz to 1100 MHz.

The system computer controls amplitude, frequency, bandwidth, modulation type and timing. GPS receivers update location and system clocks in all the mobile platforms, allowing quick setup and accurate Direction of Arrival (DOA) information.

Computer-generated digital voice provides battlefield C3 simulation (in English and foreign languages). The ACTS system supports testing and training of land-based and airborne C3 signal intercept platforms. ACTS also supports aircraft antenna patterns, DOA, jammer characterization and receiver sensitivity.

Mobile Integrated Air Defense Simulations (IADS)

Triple Ground Threat Emitter (TGTE)

From a land-based operating site, the TGTE is capable of simulating signal characteristics of certain hostile missiles, seaborne radar signals and ground radar sites in support of aircrew training, electronic warfare, operator training and warfighter/fleet training exercises. The computer processing system provides multiple databases of pre-programmed RF signal parameters. The system can be configured as a single, dual or triple threat emitter with a man-in-the-loop for day or night optical tracking, or as a stand-alone, remotely-controlled system. It's completely portable, providing the capability to change operating sites with minimal effort. Antenna assemblies are mounted on a motorized tripod pedestal, which allows them to be automatically positioned according to tracking inputs. Tracking information can be received remotely or via landline from a source such as range tracking radar. Optical tracking and video taping of incoming aircraft can be accomplished even in low light.

Surface Threat Emitter (STE)

The STE simulates over-the-horizon threats, and can be used in conjunction with ATR targets to simulate coastal defense, cruise missile sites and high interest surveillance emitters. The system is available as an expendable target for live-fire, as an augmentation to threat density scenarios, or as a stand-alone radar simulator. Two transmitters are available for use:

AN/DPT-1

- ·provides pulse width and pulse repetition frequency (PRF) selections
- ·available for expendable target applications
- ·can be set to operate for up to 8 hours unattended on live fire ranges
- ·designed for remote control operation via one-way radio commands for target applications

AN/UPT-2

- ·provides all of the parametric capability of the Triple Ground Threat Emitter
- ·increased ERP and easily selected pulse train scenarios

The **Battlefield Voice Simulation System** was created to simulate opposition forces' electronic warfare command and control communications. Used in Joint Task Force Exercises, the system is housed in a four-wheel-drive truck, making it totally mobile.

Mobile Communications Vans

·Up to eight simultaneous emitters
·Power out (ERP): Up to 100 watts
·Frequency Range: 1 MHz to 1100 MHz (antenna dependant)
·System control: Windows NT-based Instrumentation software
·Modulation Type: AM, FM, CW, Complex
·Frequency Stability: Rubidium standard
·Site Locator: GARMIN III Road Atlas 7.0
·Audio Modulation: Complete digitized and analog audio system (including foreign languages)
·On-board power generators provide continuous mobile operation
·Air conditioner and heater for operation in all types of weather
·Command radios for operations control
·Test equipment suite to monitor emitter performance and evaluate outside emitter characteristics
·Multiple on-board antennas for quick setup and radiating "on the fly"

Future EW Capabilities

Mobile Remote Emitter Simulator (MRES)

The MRES is a high-power EW simulator system capable of illuminating aircraft, ships and other signal collection platforms with emitters from 2 to 18 GHz and will provide updated threat simulations for testing and training at ATR. The system will be capable of receiving active Electronic Countermeasures (ECM) transmissions from 2 to 18 GHz for spectrum viewing and evaluation of ECM techniques. This mobile system will be designed to render a more-realistic Electronic Combat environment by providing additional radar emitter density, greater signal complexity and more diverse Angle of Arrival (AOA) separation for RWRs and ESM systems. The system is currently in the acquisition phase and estimated delivery is expected in 2001.

For More Information:

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